Avian influenza surveillance in the EU: results of the analysis of wild bird surveillance data from 2006 and 2007 and implications for targeting of future surveillance

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In 2006 outbreaks with Eurasian H5N1 highly pathogenic avian influenza (HPAI) virus occurred for the first time in the EU. In response to these outbreaks extended data collection was implemented by the European Commission and a database was established to capture epidemiological information on collected birds such as location, species of bird and status at the time of sampling. The objectives of the analysis of the available data were to explore the epidemiology of Avian Influenza with regard to species of wild birds involved, timing and location of infections as well as the applicability of different surveillance types for the detection of infections.

Laboratory tests were carried out according to the diagnostic manual (*2006/437/EC)*. Epidemiological data and test results were collected and submitted to the Community reference laboratory (CRL) at VLA-Weybridge, UK for analysis. Analysis of the results was carried out using Microsoft Access, Microsoft Excel, ArcMap, and R.

A total of 144,805 records of birds of at least 330 species were sent to the CRL in 2006 and 79,392 records in 2007. In contrast to 2006, H5N1 HPAIV incidents in 2007 were limited in time and affected fewer Member States (MS) and locations. In 2007 a total of 329 cases of H5N1 HPAIV were reported from nine incidents in four MS. Most of these (246/329 – 75%) were black-necked grebes (*Podiceps nigricollis*) from a single incident in Germany. Epidemiological evidence and phylogenetic analysis of H5N1 viruses suggest that H5N1 did not persist in the EU from 2006 but was re-introduced.

Surveillance results indicated that for the early detection of H5N1 HPAI passive surveillance of dead or diseased birds appears the most effective approach, whilst active surveillance offered better detection of low pathogenic avian influenza. No carrier species for H5N1 HPAI could be identified and almost all birds infected with H5N1 HPAI were either dead or showed clinical signs. A very large number of Mallards were tested within this surveillance and while a high proportion of LPAI infections was found in this species, H5N1 HPAI was rarely identified in these birds.

Species that appear to be very susceptible to H5N1 HPAI are swans, diving ducks, mergansers and grebes, supporting experimental evidence.

Reference List

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